#2 1731

Date: Aug 22, 2002

Mr. Hoffman John
Patent Examiner US PTO
Assistant Commissioner for Patents
Washington, DC 20231

SUBJECT: SUBJECT: Patent Application. 09/685,204 10/10/2000 - CIP of 09/268,634 03/16/1999 "Multifunctional Apparatus and Method to Manufacture Mineral Basalt Fibers".

RE: Office of Action Summary (John Hoffman -patent examiner) PA 09/685,204 10/10/2000. Art Unit -1731, Paper No: 6. Date mailed 08/01/2002

Part I

1. As regarding 35 U.S.C. 1001 law restriction you mentioned in Detailed Action (08/01/2002) on page 2 at Election/Restrictions part relating "Apparatus **and** Method " I'd like provide examples as follow. There are numerous US Patents relating mineral (glass) fiber manufacturing were disclosed at previous art. Many patents are titled "Apparatus and Method ....." OR "Method and Apparatus....." , e.g. claims relating "Apparatus" and "Method" come together. Both "Apparatus" and Method" combined in many patent applications (see list below).

5,483,965 and 5,218,963 are titled:		"Device and Method etc....."
5,842, 312		Method and Apparatus.....
5,980,700		Method and Apparatus for Producing.....
5,946,872		Method and Apparatus for Construction.....Concrete
5,232,638		Apparatus and Method for Producing.....Fibrous...
5,232638		Apparatus and Method for Introducing Additive to Fibrous
4,664,688	05/ 12/ 87	Method and Apparatus for Forming Glass Fiber
4,469,499	09/04/84	Method and Apparatus for Manufacturing of Glass Fibers
4,724,668	12/12/89	Processing and Device for Melting Materials Capable of Forming Fibers
4,853,017	08/ 01/89	Method and Apparatus for The Environmental Control of Fiber Forming Environment
4,594,086	01/10/ 86	Method and Apparatus for Distributing of Fibers in a Felt
4,437,869	03/20/ 84	Method and Apparatus for Multi-filament Glass Strand
4.401,451	08/30/ 83	Process and Apparatus for The Manufacturing of Discontinuous Glass Fibers
4,676,813	06/30/ 87	Method and Apparatus for Forming Glass Fibers
4,675,039		Method and Apparatus for Forming Glass Fibers
4,058386		Method and Apparatus for Eliminating External Hot Gas
4,398,933	08/16/ 83	Method and Apparatus for The Manufacture of Fibers
4,343,637	08/10/ 82	Method and Apparatus for Monitoring Size of Fibers
4,321,074	03/23/ 82	Method and Apparatus for Manufacturing Glass Fibers
3,905,790	09/16/ 75	Method and Apparatus for Manufacturing Glass Fibers
3,733,188	03/15/ 73	Method and Apparatus for Forming Glass Fibers
3,877911		Method and Apparatus for Producing Fibers.

2. There are also US Patents where Apparatus and Method are claimed with Bushing Blocks and Feeder together, e.g., all claims are combined in one patent (see list below):

6,044,666	04/ 04/2000	"Bushing Blocks, Bushing Assemblies, Fiber Forming Apparatus and Method For Forming Fibers".
4,886,535		"Feeder For Glass Fibers and Method of Processing".
4,818,221	04/ 04/1989	"Process and Devices for Melting Materials Capable of Forming Fibers".

This previous US Patent Trade Mark Office practice record demonstrates no contradiction with 35 U.S.C. 101 you mentioned at Election/Restrictions (page 2) as regarding ".... not proper combination of Apparatus **and** Method because the low requires it has to be either apparatus OR a method- it cannot be both".
Therefore my application *"Multifunctional Apparatus and Method to Manufacture Mineral Basalt Fibers"* is not exemption in this matter.

3. The listed above US Patents: Apparatus and Method are relating fiber manufacturing from materials having predetermined (artificially prepared) chemical composition suitable to manufacture continuous fibers (for example E-glass type fiber) OR natural materials suitable to manufacture discontinuous (not continuous) fibers, for example, rock wool fibers. For this purpose other Apparatus and Methods are used. More US patents relating mineral fiber manufacturing can be provided. However the matter of fact is that industrial scale of continuous basalt fiber (roving) manufacturing not yet in the US - does not exist in the US until now. There is not Basalt Fiber Roving product (and composite rebar made from BFR suitable for reinforced concrete applications) made from domestic US basalt rocks. This is fact.

4. My Patent Application discloses *"Multifunctional Apparatus and Method to Manufacture Mineral Basalt Fiber"* - discloses process of manufacturing continuous fiber - basalt fiber roving made from natural basalt rocks, domestic US basalts, in particularly from Northern Wisconsin basalts. It is not simple process when compared to E-glass fiber process (80% of the US mineral fiber market are E-glass fibers)

The Basalts all around the world have variations in chemical composition and not only from the point of view of normative (simple metal oxides) composition. Even more importantly that all basalts have different petrology characteristics, morphology - e.g., different content of complex oxide of variety of metals. This provides impact both on fiberization - fiber processing and quality fibers. It is not easy make good quality fibers from natural basalt rocks. Therefore commercial E-glass fibers (by cost in range from $1.0 to $3.0 /pound) over 30 years dominate on the US multi-billion mineral fibers market. However lock of E- glass fiber properties (containing 8-12% - wt) of boron oxide is reason why E-glass fiber and rebar form E-glass fiber still not in concrete even a great demand to replace steel rebar in reinforced concrete applications exists in the US for many decades.
It is true that natural basalt rock is tough material. Therefore no wonder that all claims (claim 1-through 40) of *"Multifunctional Apparatus and Method To Manufacture Mineral Basalt Fiber"* are dramatically differ from Patents - analogs and prototypes relating E-glass fiber industry. Probably it is reason why basalt fiber roving manufacturing technology still not launched in the US.

It is clear reason why *"Multifunctional Apparatus and Method To Manufacture Mineral Basalt Fiber* application (*09/685,204*) comprises both Apparatus and Method. The word "*Multifunctional*" emphasizes this point. In deed, the word "Method" can be extracted from title But apparatus remains multifunctional any way. Method of production of fibers on multifunctional apparatus is also different when compared to apparatus adapted to manufacture glass fiber. Method is based on functionality of different members of apparatus designed to manufacture continuous basalt fibers. There is no problem to modify title from "*Multifunctional Apparatus and Method to Manufacture Mineral Basalt Fiber*" to "*Multifunctional Apparatus to Manufacture Mineral Basalt Fiber*". This change is not crucial. However application (*09/685,204*) will be damaged very mach if claims (9-10, 13-14, 16-27, 29-32) relating Bushing and claims (38-40) relating Method will be omitted - removed from application. It become ultimately impossible to understand the sense of invention and advantages of "*Multifunctional Apparatus*.....". The "*Multifunctional*" in this application means that apparatus contains components having very specific functionality. All together (in combination) they make "Multifunctional Apparatus and Method...." And present a unique invention.

5. The *Multifunctional Apparatus and Method*..... key members (basalt rocks melting melting fore-chambers/retorts, glass body homogenization -collector, multi-sectional bushing made from ceramic-based composite materials) probably are not perfect by design so far.
The better modifications probably can be made. However the improvements of *Multifunctional Apparatus and Method*..... - new modifications can be made only based on test of all members of Apparatus operation in combination but not separately. They must operate together in combination. There is no chance to compare with other industrial scale apparatus and methods because no single US Company currently do not produces basalt fiber roving from domestic US basalts.

6. Basalt fiber manufacturing technology was born in the Former Soviet Union (FSU) 30 years ago. This technology was launched without patents which provide the detail explanations of process because the technology was classified. The current Russian and Ukrainian technologies are both patented. However they are in many aspects designed based on old style of FSU Apparatus and Methods. Simply they are the same FSU apparatus and methods prepared with small modifications. Therefore both Russian and Ukrainian versions in many aspects present obsolete rather than the modern basalt fiber manufacturing technology.

7. My *"Multifunctional Apparatus and Method To Manufacture Mineral Basalt Fiber* application (*09/685,204*) design is based on modern advanced materials and fundamentals of novel technology approach.
The concept of key members of apparatus both by design and operation is based on alternatives to current Russian and Ukrainian approaches. The very recent US patent 6,125,660 "Method for Manufacturing Mineral Fibers" Oct. 03, 2000 (appeared after when my application was submitted) with participation of Ukrainian inventors does not change current situation. There are no dramatic changes (or improvements) in 6,125,660 US Patent. Its design is based on obsolete FSU version of apparatus. The both bath type apparatus and forehead to feeder are practically similar to that of FSU apparatus approach. None innovation from the point of view of variations of bath and forehead widths and depths ratio. This ratio factor provides a little impact on the rock melting, heterogeneous components mixing, glass body homogenization, complex oxides disintegration when such material as basalt rocks (having high melting point mineral components) are used to manufacture continuous fibers.

8. I have intend (plan) to prepare patent applications relating: 1)- "*Two-chamber Multi-sectional Bushing*....." , 2)- "*Apparatus*....." and also 3)- "*Method*....." to improve the technology of manufacturing of high-quality basalt fiber roving (what you mentioned on page 3):
Invention 1: The multifunctional Apparatus: claims 2-8, 11-12, 15, 33-37,
Invention 2: The two-chamber bushing: claims 9-10, 13-14, 16-27, 29-32,
Invention 3: The method: claims 38-40.

However as mentioned above these Inventions can be made only based on practice of *Multifunctional Apparatus* –all components *operation.* The patent application (*09/685,204*) has to be accomplished to move forward basalt fiber technology in the US based on alternatives to current Russian/Ukrainian patent application's approaches .

It is impossible create better modifications of "*Multifunctional Apparatus and Method* ....." without knowing of operational capability of all components (especially Bushing - member of Apparatus) in combination and what quality fiber will be produced form US basalts.

The new patent applications will generate additional paperwork, but basalt fiber manufacturing technology (a unique technology) - the technology which capable revolutionize many industries will remain unknown in the US.
The Patent Application 09/685,204 10/10/2000 (Continuation In Part (CIP) of 09/268,634 dated 03/16/1999 application) presents breakthrough to new technology and real product with unique properties - product which until now remains unknown in the US.

V. Brik– author

Part II

Appended a receipt of acknowledgment of non-provisional Patent Application dated 12/14/2000. This receipt provides information about c Data are as follows:
Application number 09/685,204 10/10/2000 is a CIP of 09/268,634 03/16/1999
Which Claims Benefit of 60/189,256 03/14/2000
Which Claims Benefit of 60/130,456 04/22/1999
Which Claims Benefit of 60/120,730 02/18/1999

Recently a new US Patent "Method For Manufacturing Mineral Fibers" No: 6,125,660 dated ..... is disclosed - first page of this patent is enclosed. The Contents History of this patent is dated from April 17, 1997.
My Patent Application "*Multifunctional Apparatus and Method to Manufacture Mineral Basalt Fibers*" is different both by apparatus design and method (processing) and started much earlier than history in accordance to receipt - from Feb. 19,1999.
A number of Provisional Patent Applications relating "*Multifunctional Apparatus and Method.....*" have been submitted to US Patent TMO starting from March 17, 1997 (list below is appended):

1. 60/040,602 (03/17/97) Foreign Filing License Granted 05/06/97 - PPA
2. 60/042,384 (04/24/97) Foreign Filing License Granted 05/23/97 - PPA
3. 60/078,104 (03/16/98) Foreign Filing License Granted 06/02/98 - PPA
4. 60/077,797 (03/12/98)) Foreign Filing License Granted 04/08/98 - PPA
5. 60/120,730 (02/18/99) Foreign Filing License Granted 03/10/99 - PPA
6. 09/268,634 (03/16/99) Foreign Filing License Granted 04/19/99 - Small Entity PPA
7. 60/189,256 (03/14/00) Foreign Filing License Granted 05/11/00 - PPA.

At least two more my PPA can be add to history of CIP patent application:

1. PPA - 60/078,104 (03/16/98) Foreign Filing License Granted 03/16/98

The non-provisional Pat. App. 09/268,634 (03/16/99) has filed exactly at day when PPA 60/078,104 (03/16/98) expired therefore there is no break of time (year).

It is important also include PPA:

2. 60/040,602 dated (03/17/97), Foreign Filing License Granted 05/06/97,

because mentioned Patent 6,125,660 File Contents History starts from Apr.17, 1997.

Both PPA's: 60/040,602 (03/17/97 and 60/077,797 03/12/98) were included into Declaration- Supplemental Priority Data Sheet.

Sincerely: Vlad. Brik Aug. 20 / 2002

Vladimir B. Brik - author